

CLAIMS

What is claimed is:

1. A connector for use in a plasma arc apparatus comprising:
a housing defining a hollow internal channel;
at least one locking finger disposed within the hollow internal channel;
and
a pin defining a first collar with a shoulder disposed thereon,
wherein the locking finger engages the shoulder to secure the pin within the housing.
2. The connector of Claim 1, wherein the pin further comprises a tapered portion such that the shoulder is disposed between the first collar and the tapered portion.
3. The connector of Claim 1, wherein the locking finger is integrally formed within the hollow internal channel.
4. The connector of Claim 3, wherein the housing and the locking finger comprise a fiber-reinforced nylon material.
5. The connector of Claim 1 further comprising eight locking fingers evenly spaced around the hollow internal channel.
6. The connector of Claim 1, wherein the pin further comprises a second collar disposed along the pin that blocks access to the locking finger through a first portion of the hollow internal channel.
7. The connector of Claim 1, wherein the pin is recessed within a second portion of the hollow internal channel.

8. The connector of Claim 1, wherein the pin is a negative lead gas carrying pin of the plasma arc cutting apparatus.
9. The connector of Claim 7, wherein the pin comprises a brass material.

10. A connector for use in a plasma arc apparatus comprising:
a plug housing defining a hollow internal channel with a first portion
and a second portion;

a plurality of locking fingers disposed within the hollow internal channel
between the first portion and the second portion; and

a negative lead gas carrying pin defining a tapered portion and a first
collar with a shoulder disposed therebetween,

wherein the locking fingers engage the tapered portion and the shoulder to
secure the negative lead gas carrying pin within the plug housing.

11. The connector of Claim 10, wherein the locking fingers are integrally
formed within the hollow internal channel.

12. The connector of Claim 11, wherein the plug housing and the locking
fingers comprise a fiber-reinforced nylon material.

13. The connector of Claim 10, wherein the plurality of locking fingers
comprise eight locking fingers evenly spaced around the hollow internal channel.

14. The connector of Claim 10, wherein the pin further comprises a second
collar disposed along the pin that blocks access to the locking fingers through a first
portion of the hollow internal channel.

15. The connector of Claim 10, wherein the pin is recessed within a
second portion of the hollow internal channel.

16. The connector of Claim 10, wherein the negative gas carrying pin
comprises a brass material.

17. A connector comprising:

a housing defining a hollow internal channel, the hollow internal channel comprising a first portion and a second portion;

at least one locking finger disposed within the hollow internal channel;

a pin defining a first collar with a shoulder disposed thereon; and

a second collar disposed along the pin,

wherein the second collar slidably blocks access to the locking finger through the first portion of the hollow internal channel, the pin is recessed within the second portion of the hollow internal channel, and the locking finger engages the shoulder to secure the pin within the housing.

18. The connector of Claim 17, wherein the locking finger is integrally formed within the hollow internal channel.

19. The connector of Claim 18, wherein the housing and the locking finger comprise a fiber-reinforced nylon material.

20. The connector of Claim 17 further comprising eight locking fingers evenly spaced around the hollow internal channel.

21. A connector for use between a power supply and a torch lead in a plasma arc apparatus, the connector comprising:

a plug housing defining a hollow internal channel;

a plurality of locking fingers integrally formed with the plug housing and disposed within the hollow internal channel; and

a negative lead gas carrying pin defining a first collar with a shoulder disposed thereon,

wherein the locking fingers engage the shoulder to secure the pin within the housing.

22. The connector of Claim 21, wherein the plurality of locking fingers comprise eight locking fingers evenly spaced around the hollow internal channel.

23. The connector of Claim 21, wherein the negative lead gas carrying pin further comprises a second collar disposed along the pin that blocks access to the plurality of locking fingers through a first portion of the hollow internal channel.

24. The connector of Claim 21, wherein the negative lead gas carrying pin is recessed within a second portion of the hollow internal channel.

25. The connector of Claim 21, wherein the plug housing and the locking fingers comprise a fiber-reinforced nylon material.

26. The connector of Claim 21, wherein the negative lead gas carrying pin comprises a brass material.

27. A housing for use in connecting a pin in a plasma arc apparatus comprising:

a hollow internal channel; and

at least one locking finger disposed within the hollow internal channel,

wherein the locking finger engages the pin to secure the pin within the housing.

28. The housing of Claim 27 further comprising eight locking fingers evenly spaced around the hollow internal channel.

29. The connector of Claim 27, wherein the pin slidably engages a first portion of the hollow internal channel.

30. The connector of Claim 27, wherein the pin is recessed within a second portion of the hollow internal channel.

31. The connector of Claim 27, wherein the housing and the locking finger comprise a fiber-reinforced nylon material.

32. A pin for use in a plasma arc apparatus comprising:
a first collar; and
a shoulder disposed on the first collar,
wherein the shoulder is engaged by a housing to secure the pin within the housing.
33. The pin of Claim 32 further comprising a second collar disposed along the pin that blocks access to the shoulder.
34. The pin of Claim 32, wherein the pin comprises a brass material.

35. In a connector for making a connection in a plasma arc apparatus to provide fluid and electric power, the connector having a housing mounting a pin for conducting fluid and electric power, the improvement comprising:

a tamper resistant connection between the housing and the pin comprising:

a shoulder disposed on the pin;

a hollow internal channel within the housing to receive the pin, the hollow internal channel comprising a plurality of locking fingers disposed therein to engage the shoulder and resist removal of the pin from the hollow internal channel.

36. The connector of Claim 35, wherein at least a portion of the pin proximal to the fingers is sized to closely conform to the hollow internal channel, to restrict access to the locking fingers.

37. The connector of Claim 35, wherein the locking fingers slope inwardly and distally, and wherein the shoulder faces proximally when disposed in the hollow internal channel to engage distal ends of the locking fingers and retain the pin against proximal movement.

38. The connector of Claim 35, wherein the hollow internal channel and the pin extend distally beyond the engagement between the locking fingers and the pin, to define a relatively long, restricted space between the pin and the hollow internal channel that restricts access to the fingers.